



学术报告

题目：Sub-nano Confined Matter at High Pressure

报告人：Mario Santoro 教授

意大利国家研究委员会光学研究所

时间：2019年5月16日 (周四) 下午 14: 30

地点：固体所新楼520会议室

报告摘要： Dr. Santoro will talk about a very intriguing research field, joining high pressure science of simple molecular systems to the amazing world of zeolites. On a pure physical ground, confining dense, inert simple systems at high pressures, at the Angstrom scale, in zeolites, produces novel and exotic sub-nanophases of these systems. Indeed, he will present results on recently obtained dense sub-nanophases of rare gases and of N₂, O₂, H₂ and H₂O, where these systems tend to form disordered/glassy confined structures and also, in the case of O₂, weak chemical clusters such as O₄. He will then present on several novel compounds obtained by reacting dense simple carbon bearing molecular systems at GPa or tens of GPa, strongly confined in the sub-nanopores of zeolites. The reaction products are polymer/zeolite nanocomposites, of 1D type in some cases, and they have remarkable interest for fundamental science, and also for potential applications in mechanics, electronics, photonics and energy storage. Investigations were performed by using diamond anvil cells, optical spectroscopy, and X-ray diffraction, and also classical and DFT simulations.

报告人简介： Santoro教授数十年来一直从事高压科学的最前沿实验研究工作。至今，已发表过100多篇学术论文，其中在Nature杂志上发表1篇，其子刊Nature Communications上发表2篇、Nature Physics 上2篇、Nature Materials上2篇，国际顶尖期刊PNAS上发表2篇；在物理领域的权威国际刊物Physical Review Letters上发表论文1篇，拥有1项专利。同时被邀请在Chem. Review上发表本领域的综述文章。申请人还获得“SanValentino d'Oro” International Award”（2000）奖和佛罗伦萨大学青年学者奖金（1999）。